

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

The subject matter of former claims 2 and 18 have been amended into claims 1 and 17, respectively. Claims 2 and 18 have been cancelled. Various claims have been amended for clarity and to correct minor typographical errors.

No new matter is being added by any of the present amendments.

Claims 1, 4-9, 11-14, 17, 20-25, 27-30, 34, 35, 37 and 38 are patentable over Wenzel (US 2003/0194135) in view of Constantoudis et al.¹

Claim 1, as amended, recites “wherein computing the at least one roughness parameter comprises computing a contact edge roughness (CER) based on a sum of squares of the respective distances and a number of degrees of freedom of the figure”. While page 5 of the office action alleges that such features are disclosed by the combination of Wenzel and Constantoudis, this is not so.

Paragraphs 215-217 of Wenzel disclose equations 21 and 22 which present constraints to a weight function W. In particular, paragraph 217 of Wenzel states that “[c]ompared to (21) the new formula (22) may offer many new degrees of freedom”. Therefore, at best, Wenzel states that equation 22 has more degrees of freedom than equation 21, but does not in anyway teach or suggest that a computation of a contact edge roughness (CER) should be based on a number of degrees of freedom of a figure. Therefore, claim 1 and its dependent claims are patentable over Wenzel.

Page 1020 of Constantoudis discloses quantifying a line edge roughness via the height-height correlation function specified in equation (1). Even if this is so, such disclosure of Constantoudis does not involve a number of degrees of freedom of a figure. Therefore, even if the teachings of Constantoudis were combined with those of Wenzel, there would still be no teaching or suggestion that a computation of a CER should be based on a number of degrees of freedom of a figure. Accordingly, claim 1 and its dependent claims remain patentable over Wenzel, even in view of Constantoudis.

Claim 17, as amended, recites features similar to those recited in claim 1. Therefore, claim 17 is likewise patentable over Wenzel in view of Constantoudis.

With respect to claim 34, page 10 of the office action admits that Wenzel fails to teach or suggest “performing a Fourier analysis of the respective distances; and filtering results of the Fourier analysis based on a process used to form the feature”. Constantoudis is cited for curing the deficiencies of Wenzel, while this is not so. Constantoudis applies a noise-smoothing filter to the initial image before performing edge detection (Constantoudis at page 1022), but is silent regarding filtering results of a Fourier analysis. Therefore, claim 34 remains patentable over Wenzel, even in view of Constantoudis.

Claims 35, 37 and 38 recite features similar to those recited in claim 34. Therefore, claims 35, 37 and 38 are likewise patentable over Wenzel in view of Constantoudis.

Claims 10, 15, 26 and 31 are patentable over Wenzel in view of Constantoudis and Miyano (US 6,480,807).

Miyano is cited for teaching certain features of the dependent claims. Even if this is so, Miyano fails to cure the above-mentioned deficiencies of Wenzel and Constantoudis. Therefore, claims 10, 15, 26 and 31 remain patentable over Wenzel and Constantoudis, even in view of Miyano.

Allowable Subject Matter

Applicants thank the examiner for indicating that claims 3 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Such claims have been rewritten in independent form, and therefore should be allowable. Applicants also thank the examiner for allowing claims 16, 32, 33 and 36.

¹ V. Constantoudis et al. “Quantification of line-edge roughness of photoresists. II. Scaling and fractal analysis and the best roughness descriptors”, *Journal of Vacuum Science & Technology B*, 21(3), pp. 1019-1026, April 25, 2003.

For at least the foregoing reasons, the present claims are patentable over the cited references. If there are any additional fees due in connection with this communication, please charge Deposit Account No. 19-3140.

Respectfully submitted,

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